

IN THE CLAIMS

Please replace the claims as filed with the claims set forth below. This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An apparatus implantable in a heart ventricle comprising:
a frame configured to engage an inner circumferential periphery of a ventricle and to expand and contract between an expanded state corresponding to a desired end diastolic diameter of a ventricle and a contracted state corresponding to a desired end systolic diameter of the ventricle;

assisting means operatively associated with the frame for mechanically assisting movement of the ventricle toward at least one of an end systolic diameter during systole and an end diastolic diameter during diastole; and

means operatively associated with the frame for limiting ~~an~~ the ventricle to a select end diastolic internal diameter ~~of the ventricle~~.

2. (Original) The apparatus of claim 1 wherein the assisting means assists movement of the ventricle toward both end systolic diameter during systole and end diastolic diameter during diastole.

3. (Original) The apparatus of claim 1 wherein the assisting means assists movement of the ventricle toward only end diastolic diameter during diastole.

4. (Original) The apparatus of claim 1 wherein the assisting means is integrally formed with the frame.

5. (Original) The apparatus of claim 1 wherein the frame comprises a bistable element having a contracted stable state and an expanded stable state corresponding to a desired end systolic diameter and an end diastolic diameter.

6. Canceled.

7. (Original) The apparatus of claim 5 wherein the bistable element comprises a plurality of longitudinal bands each having a top and a bottom end, the top ends of the longitudinal bands being joined by a top circumferential band extending therebetween and the bottom ends of the longitudinal bands being joined by a bottom circumferential band extending therebetween.

8-12. Canceled.

13. (Original) The apparatus of claim 7 further comprising the bottom circumferential band being configured to perform as a spring.

14. (Original) The apparatus of claim 7 further comprising a mitral annuloplasty ring extending axially from a top of the bistable element, the bistable element and the mitral annuloplasty ring being configured so that with the bistable element attached to myocardium defining the inner circumferential periphery of a left ventricle, the mitral annuloplasty ring is below but proximate the mitral annulus.

15. (Currently amended) The apparatus of claim 14 wherein at least one of the top and bottom circumferential bands is split across its circumferences to define a C-shaped band.

16. Canceled.

17. (Currently amended) The apparatus of claim 5 wherein the assisting means comprises the frame being configured to self-bias between the expanded and contracted bistable states when circumferentially deflected beyond a select point toward the other of the bistable states.

18-19. Canceled.

20. (Original) The apparatus of claim 1 wherein the frame and the assisting means comprise:

a resilient band;
a spring element operatively associated axially with the resilient band; and
means for joining the ends of the resilient band into a circle;
the resilient band being configured, with the ends joined, to engage an inner circumferential periphery of a ventricle, with the spring element in a relaxed state during one of an end diastolic or end systolic state of the ventricle.

21-25. Canceled.

26. (Original) The apparatus of claim 20 further comprising a mitral annuloplasty ring extending axially of the resilient band with the resilient band formed into a circle.

27-28. Canceled.

29. (Currently amended) A method of treating cardiac disease comprising:
surgically accessing a ventricle;
inserting within the ventricle an apparatus configured to mechanically assist movement of the ventricle toward at least one of an end systolic diameter during systole and an end diastolic diameter during diastole and configured to limit ~~an~~ the ventricle to a select end diastolic internal diameter ~~of the ventricle~~; and
attaching the device to a portion of myocardium defining an inner circumferential periphery of the ventricle.

30-33. Canceled.

34. (Original) The method of claim 29 wherein in the inserting step the apparatus comprises a resilient band comprising at least one spring element operatively associated axially with the resilient band to allow axial stretching and compression of the resilient band, the inserting step further comprising placing the resilient band into contact with the inner circumferential periphery of the ventricle and forming the resilient band into a loop of a diameter about equal to an end diastolic diameter an inner circumferential periphery of the ventricle.

35. Canceled.

36. (Original) The method of claim 34 wherein the resilient band includes at least one circumferential ligature operatively associated with the resilient band, the circumferential ligature having opposing free ends, the method further comprising:

forming the resilient band into a loop by tying the opposing free ends of the ligature together.

37-39. Canceled.

40. (Original) The method of claim 29 further comprising, prior to the inserting step,
performing a surgical ventricular reduction.

41-42. Canceled.

43. (Original) The method of claim 34 wherein the resilient band further comprises a mitral annuloplasty ring extending axially of the resilient band with the resilient band formed into a circle, the method further comprising:

attaching the mitral annuloplasty ring to the myocardium below but proximate the mitral annulus.

44. (Currently amended) An apparatus implantable in a heart ventricle comprising:
a bistable element configured to engage an inner circumferential periphery of a ventricle, the bistable element having a contracted stable state and an expanded stable state corresponding to a desired end systolic diameter and an end diastolic diameter, respectively.

45. Canceled.

46. (Currently amended) The apparatus of claim 44 further comprising means operatively associated with the bistable element for limiting the expanded stable state of the bistable element to a select diameter.

47-58. Canceled.

59. (Original) The apparatus of claim 44 wherein the bistable element is configured to self-bias between the expanded and contracted bistable states when circumferentially deflected beyond a select point toward the other of the bistable states.

60. (Original) The apparatus of claim 44 having a generally elliptical profile in the expanded state and a generally hour-glass profile in the contracted state generally conforming to an ideal ventricle shape during end diastole and end systole, respectively.

61. (Original) A method of augmenting systolic contraction and diastolic relaxation of a heart ventricle comprising:
providing a bistable element configured to engage an inner circumferential periphery of a ventricle, the bistable element having a contracted stable state and an expanded stable state corresponding to a desired end systolic diameter and end diastolic diameter, respectively;
surgically accessing the ventricle;
inserting the bistable element within the ventricle; and
attaching the bistable element to a portion of myocardium defining the inner circumferential periphery of the ventricle.

62. (Currently amended) The method of claim 61 further comprising limiting the expanded stable state of the bistable element to a select diameter.

63-67. Canceled.

68. (Currently amended) An apparatus implantable in a heart ventricle comprising:
a resilient band;

a spring element operatively associated axially with the resilient band;
means for joining the ends of the resilient band into a circle; the resilient band being configured, with the ends joined, to engage an inner circumferential periphery of a ventricle, with the spring element in a relaxed state during diastole of the ventricle; and
means operatively associated with the resilient band for limiting ~~an~~ the ventricle to a select end diastolic internal diameter of the ventricle.

69. (Original) The apparatus of claim 68 further comprising a biocompatible sheath around the resilient band and spring element.

70. Cancelled.

71. (Original) The apparatus of claim 68 further comprising the spring element being integrally formed of the resilient band.

72-74. Canceled.

75. (Original) The apparatus of claim 68 further comprising a mitral annuloplasty ring extending axially of the resilient band with the resilient band formed into a circle.

76-77. Canceled.

78. (Currently amended) A method of treating cardiac disease comprising:
a) providing a resilient band having at least one spring element operatively associated axially with the resilient band to allow axial stretching and compression of the resilient band and means for limiting axial stretching of the resilient band to a select diameter;
b) surgically accessing a ventricle of a heart;
c) placing the resilient band into contact with the inner circumferential periphery of the ventricle;
d) forming the resilient band into a loop of a diameter about equal to an end diastolic diameter of an inner circumferential periphery of the ventricle; and

e) attaching the resilient band loop to the myocardium defining the inner circumferential periphery of the ventricle.

79. Canceled.

80. (Original) The method of claim 78 wherein the resilient band includes at least one circumferential ligature operatively associated with the resilient band, the circumferential ligature having opposing free ends, the method further comprising:

forming the resilient band into a loop by tying the opposing free ends of the ligature together.

81-88. Canceled.

89. (Original) The method of claim 78 wherein the resilient band further comprises a mitral annuloplasty ring extending axially of the resilient band with the resilient band formed into a circle, the method further comprising:

in step b), surgically accessing the left ventricle; and

f) attaching the mitral annuloplasty ring to the myocardium below but proximate the mitral annulus.